

EXHIBIT S

QST¹ Paper #1 - New Theory of SpaceTime/Matter interaction explaining emergent gravitation. The QST model universe in Minkowski space has one black hole of confined dark energy, triggering the emergence of gravity. In QST black holes consume spacetime at c having the same energy density which leads to a Cyclic universe & the release of confined energy & entropy.

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Abstract

Current scientific understanding assumes black holes ("BH") consume [SpaceTime](#) ("ST") and matter at c and confine that energy past the event horizon ("EH"). The mass then flows towards the BH singularity. BH create "curved space time" ("CST") around them described by General Relativity (GR). CST creates emergent entropic gravity ([EEG](#)) that extends in all directions at c . GR does not explain what ST is or how the ST field interacts with matter or a BH. Quantum mechanics (QM) describes all forms of known confined energy of matter in fields and describes the interactions between these fields but does not include explanation of quantized gravity. Both GR and QM explain matter and fields of energy density at any point in time and space. GR & QM do not explain spacetime and matter in fields as continuous moving, flowing, interacting energy domains.

In GR, Matter and ST affect each other as separate energy fields but do not interact directly. In QST Energy is transferred, transformed and recycled between the ST and quantum field theory (QFT) domains changing forms of confinement and density which ends with dark energy (DE) confined in a black hole. ST & EM fields are confined by the universe and QFT fields use the strong and weak forces for [energy confinement](#). This energy exchange between ST/QFT enables all force carrier interactions and maintains energy levels & input values of all fundamental particles of QFT.

This paper will compare two sets of laws in an empty universe with only one black hole in its center. One set is based on Einstein GR laws and the other on the QST model of spacetime flow (STF) and ST/QFT/DE conversion. Both models are based on the same Minkowski spacetime field universe.

To understand gravity and unite GR & QM, scientists need to explain:

1. GR fails to explain what spacetime is and how it interacts with matter. While describing the energy/matter equivalence no evidence or explanation for the interaction is provided.
2. In GR mass in motion stays in motion indefinitely while also curving ST. The curving and un-curving of ST by a moving mass requires a lot of energy which was never detected.
3. Why ST flows, and what source of energy allows such massive flows. (Fig 5, it is not dark energy)
4. Why BH/ST interact at c . Where does the consumed ST go?
5. What happens to matter, radiation, spacetime trapped beyond the EH of black holes?

¹ QST - "Quantum Spacetime Theory" describes a new theory of gravity; it explains the quantum interaction between space, time, matter and dark energy. A full description of QST can be found in the book titled ["The Cheerios Effect"](#) on Amazon. This paper can be viewed on <https://independent.academia.edu/AlexMashinsky> Copyright 2025.

QST Minkowski ST Universe

Imagine a universe based on a [Minkowski ST](#) field (MSF) that only has one Black Hole in its center.(Fig 5) BH1 could have been created from collapse of matter or is a primordial BH. BH1 obeys all laws of GR.

The MSF obeys GR laws and has a circumference dark energy event horizon (DE EH). Using Newton's law of universal gravitation (UG), GR or QST give us the same results and can verify that the gravity forces at any distance from the EH of BH1 are equal, $STF1=STF2=SFT3$.

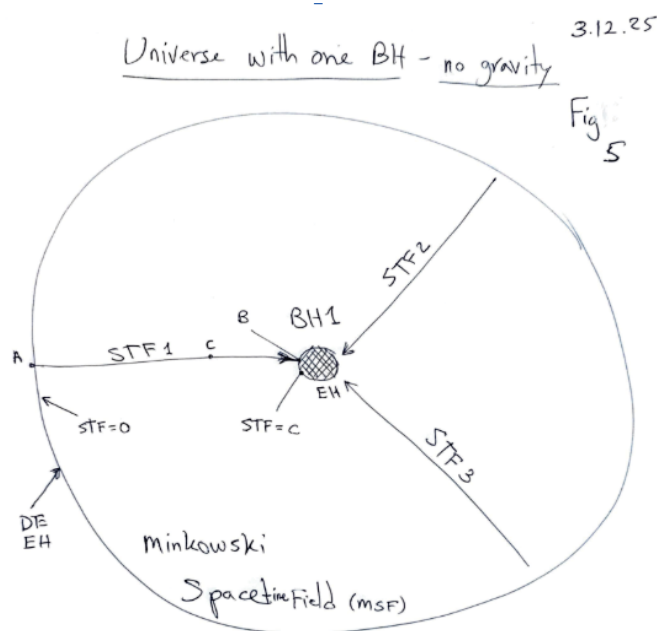


Fig 5

But we discover many other differences in the model between UG, GR, and QST:

1. In GR the BH1 will be bending ST around it at a steady rate creating a gradient of energy density $G_{\mu\nu}$ around the BH1. In QST on the other hand, BH1 will increase its mass and radius over time due to the continued interaction and conversion of spacetime into mass at the EH of BH1². Neither UG nor GR indicate any change in the mass of a BH over time due to its interaction and bending of ST. Recent observations confirm that dormant BH increase their mass by consuming ST at c. "[We find that the SMBHs in massive, red-sequence elliptical galaxies have grown in mass relative to the stellar mass by a factor of 7](#)"
2. Moving, rotating or stationary BH would have the same $G_{\mu\nu}$ in GR, but in QST these three conditions would create different STF and will explain much of the observed phenomena attributed to dark matter, galaxy rotation curve (paper [#4](#)), pulsar origins, and ST frame dragging.
3. QST postulates that Minkowski spacetime is a bendable, stretchable, and consumable energy field. MSF interacts with BH1 so ST energy becomes confined DE in the EH of BH1.
4. QST postulates that ST, matter, and black holes are different forms of confined quantum energy waves. These give rise to emergent mass in both BH1 and ST in the MSF. All confined energy in

² Studies of dormant SMBH adding mass over time proving the QST model [1,2](#).

BH1 is derived from the ST field through quantum conversions at c , at the boundary of ST and the EH of BH1.

5. QST postulates that the ST is consumed by matter or BH at a quanta via quantum interactions. This is the missing [formalism](#) in GR and UG. QST formalism is described in QST papers 1-5.
6. In this model universe the MSF has no radiation or mass. BH1 does not radiate and no other QFT particles exist.
7. QST postulates that in GR, BH1 consumes ST at c at the EH. This consumption creates lower energy density around the EH. This lower energy zone acts as a permanent energy “sink” and the entire ST field around the BH1 is the “source”³. This [source/sink](#) potential energy of the ST field is missing from the GR and QM equations.
8. BH1 EH interacting with ST, creates the energy “sink” inside the “ST source” imbalance of the MSF. This imbalance creates the continuous gravitational attractive force via an energy density gradient that QST postulates as STF.
9. The speed of STF at any point of the MSF dictates the radius of BH1 and represents all the mass (in the form of ST) BH1 ever consumed. The STF created by such confined and converted accumulating mass proves that the ST field and dark energy interaction maintains the relationship between the two domains. If all such mass escaped into a singularity at the speed of light the information about the overall mass of any BH would disappear and STF would decrease over time. Over time the only change to a BH is that the point where $STF=c$ around the EH increases in a linear relationship to the ST + Matter consumed by BH1.
10. The sink around BH1 is causing STF towards the EH with $STF=c$ at the EH. The STF decreases as a square of the distance (agrees with GR & UG). STF follows Coulomb EM law but has a lower constant value.
11. Since ST interaction with BH1 produces the same type of gravitation laws as spacetime interaction with matter in our universe, we can deduct that gravity is a property of ST and not of the BH1 or matter. Gravity as we know it can also exist in a universe with no matter, made just of black holes.
12. In QST, STF in the MSF does not know if it is flowing towards BH1 made of confined DE or a star made of confined matter with the same mass as BH1. This is another proof point that gravity is an emergent property of the ST.
13. The mass of a BH is high density dark energy (DE). As the mass of BH1 increases due to ST/EH conversion the radius and mass of BH1 increases at a linear rate proving the accumulation of mass at its highest density (observational proof on [P8](#)).
14. The ratio between consumption of STF by BH1 and increase in the radius of BH1 gives us the constant “MR” representing the conversion ratio of ST into confined DE inside the BH1 EH. The conversion results in instant increase in the surface area of the EH proving no energy or information is lost.
15. QST postulates that BH1 is a 2D empty bubble confined by $STF=c$ “source”, which itself is confined in the DE EH located in a MSF. BH1 has its entire mass stored in the EH and has no singularity at the BH1 center.
16. Since $E = mc^2$ and $STF=c$ at the EH, anything that reaches the EH is converted into pure energy at c . The EH of BH1 confines E as DE. Since there is no more room for new E from STF the radius of the EH must increase proportionally to accommodate the new DE at the same max density. Nothing can pass through the EH since if it did the radius would not need to increase and the mass of BH1 would fluctuate and not increase in a steady rate that is proportional to STF.
17. In GR BH1 would have a singularity in its center. Energy passing through the EH of BH1 could not communicate faster than c with the EH, causing its radius to decrease and for some of its mass to decrease. Energy flowing at c has no mass.

³ Opposite to the “Source and sink dark energy theory” of our universe [1,2,3](#),

18. GR equations provide for infinite curvature beyond the EH but the QST model eliminates all such infinities with the 2D confined EH. QM infinities are also capped with the MSF/DE/Matter conversion.
19. The pressure between $STF=c$ at the EH and the DE confined in the EH is equal. This equivalence follows Newton third law and Einstein GR equivalence of mass and ST.
20. QST postulates that with sufficient energy and/or $STF < c$ mass in the form of DE can escape from any BH. (see QST paper #4). If BH1 radius gets to be large enough, the STF "source" will not have sufficient STF to maintain $STF=c$ at the EH. The entire MSF universe will reset with the release of the confinement and disintegration of the DE stored in the EH. DE converting to ST causes rapid inflation of ST in the MSF which will be observable as a big bang. Based on this formalism there was no singularity before the Big bang and there is no singularity in any existing BH.
21. The QST definition of gravity in all its forms is resistance to STF or acceleration of matter vs the MSF.
22. BH1 creates EEG around it by consuming ST and creating continuous STF. BH1 EH maintains $STF=c$ via STF in the MSF.
23. The circumference of the universe DE EH vs BH1 EH indicates the total potential (PE) + kinetic energy (KE) confined in the MSF field. STF from DE/EH→BH1/EH dictates the overall life of such a universe. One can calculate based on this ratio when $STF < c$ in this universe and cause a reset of DE inflation in ST (big bang).
24. Since all BH have a hollow center all observational calculations of Force and Gravity of BH should be from the EH sphere and not from their center. This resets all UG & GR equations.
25. The [Schrodinger](#) QM equation⁴ of $PE + KE = TE$ need to be amended to include the PE of ST and the KE of STF and confined mass.
26. Since BH1 is a giant QM energy "particle" we can apply the same QM operator laws and calculations to all fundamental particles of QFT. They all consume STF at c . (see Paper #2)

The gravity force at point C (STF_c fig 5) represents a radius of r_{CB} (not the radius from the center of the BH) and is equal to the vector value representing STF through point C towards BH1:

$$F_c = STF_c = \frac{Gm_{BH1}}{r_{CB}^2}$$

Since all BH are perfect spheres they uniformly affect all the STF around them. BH1 creates a uniform STF from A→B. ST is confined in the EH sphere as dark energy (DE).

Step by step spacetime Black hole interaction

1. BH1 consumes ST at c on its EH. ST is converted into dark energy and stored in the EH.
2. BH1 consumption of ST creates an energy density "sink" around the EH sphere. The "sink to source" (STS) gradient imbalance propagates at c in all directions of the MSF.
3. This energy sink creates a uniform flow STF1, STF2, STF3 from all directions towards the BH EH (B). STF follows the STS. If the STS stops or is disrupted, so will the STF.
4. STF at any point in the radius of STF1 will experience a force (F) due to the permeation of STF through that point in the radius. As the mass of BH1 increases from consumption of ST, the value of F will also increase for any mass resisting STF based on its distance from the EH. For example at point C the value of F will increase proportionally to the increased mass of BH1 divided by the smaller value of CB^2 at the EH.

⁴ Schrodinger equations 1,2,3,

5. The radius representing any location on STF1 around BH1 decreases from points A→C→B the ST density decreases because the speed of STF increases as square of the distance until it reaches STF=c at point (B) on the EH.
6. BH1 consumes STF at c on its EH (B) and so the amount of STF consumed is directly converted to the surface increase of the DE on the EH.
7. The density of energy of ST increases as the square of the distance from (B) in all directions as further you go from the sink of the BH1. The speed of STF decreases as the square of the distance from (B) in all directions the further you go from the sink of the BH1.
8. This results with a symmetric flow of ST and in a symmetric energy density around such BH1.
9. The total energy in the MSF universe⁵ = the energy/mass of BH1 + the potential energy (PE) of STF across the entire MSF field. UG & GR do not account for this PE evidenced as STF.
10. Since the Schwarzschild radius of any BH is:

$$R = \frac{2GM}{c^2}$$

BH1 EH surface area (A):

$$A_{BH} = 4\pi R^2$$

$$EH_{STF} \frac{\text{meters}}{\text{second}} \text{ (ST consumed on surface of BH1)} (EH_{STF}) = A_{BH} * c$$

Rate of increase of the radius of BH1

$$A_{BH} + EH_{STF}$$

Rate of new DE represented as a new expanded surface area of the sphere on the EH of the BH1.
According to QST no energy or mass in a BH travels or is exchanged to any other form.

If we apply the “GR [vacuum energy](#) density” calculations to this MSF universe we will find $10^{-29} \frac{g}{cm^3}$

if we apply the QM laws to this MSF universe we will find vacuum energy “source field” density $10^{93} \frac{g}{cm^3}$

The difference of 122 orders of magnitude represents the most fundamental discrepancy between theory and measurements in physics. QST explains the difference on [P7](#)

Is ST a high energy “charged source field” described by QM/QST or is it an almost neutral field with small curved fluctuations described by GR classical equations?

While our observations and measurements tell us GR is correct and QM/QST is only theoretical, the energy we are trying to measure (DE & ST) does not interact with our measurement equipment. Vacuum energy is trapped in the difference in energy density between the source (DE EH) and the sink (EH BH1) as well as in the STF created by the sink across the entire MSF.

In QST all matter and BH mass was created from the conversion of spacetime field to DE based on the ST/DE quantum conversion, The QST model assumes the ST field has the required energy density to continue providing the STF=c at the EH of BH1 described in our MSF universe.

STF consumed by BH1 is slowly increasing as BH1 mass and radius increases. The conversion of ST by BH1 into confined energy in the EH transfers energy from the ST field to the BH1 EH 2D bubble. The consumption of ST around the EH area leads to a uniform gradient of STF towards (B).

⁵ Vacuum energy density and gravitational entropy [1,2,3](#).

Symmetry of the MSF universe

Any universe that follows the STF model has finite life before it runs out of STF to feed all matter and BH. At a certain size and after a certain amount of time, the radius of BH1 will become so large that the described MSF universe will not have sufficient STF to provide STF=c across its expanding EH. This condition will immediately lead to the breakdown of the confinement of the EH by STF. Such a breach will create a “big bang” type of event inside the MSF where the confined DE of the EH will escape in all directions at c. This inflation of ST in one large catastrophic event is similar to the big bang described in our universe.

The DE in the EH is the most dense form of energy possible, it is also in the lowest possible entropy. The DE sudden expansion reverses the STF becoming the source instead of the sink due to the insufficient pressure from the surrounding ST (DE EH becomes a ST white hole like the [dipole repeller](#)). The surrounding ST field exists at a much higher entropy and lower energy density state. This thermodynamic quantum state difference causes quantum interaction between ST & DE fields, causing conversion of DE into ST energy. (see more in QST paper #4) This energy conversion is symmetric but in reverse order to how ST converted into DE in the EH of BH1. This is described as the [Cyclic model](#)⁶ but until this paper no mechanism was provided for what triggers the cycle or how energy is recycled or released to create spacetime and matter. (see QST Paper #5)

If we add a second mass in point (C) to this Minkowski MSF universe we will have EEG for the first time. BH1 by itself has no gravity since the EH consumes STF=c evenly from all sides and there is no resistance to STF from any direction. The EH is also bound by speed of information or causality from the EH.

Emergent Entropic Gravity in the MSF

With the introduction of a stationary mass C, we now have two energy “sink” zones as both BH1 and C now consume ST in proportion to their mass. In QST any resistance to permeating STF creates G forces. The introduction of mass C into the existing STF towards the EH of BH1 from A→B experiences EEG at C. Stationary C is resisting the STF going from A→B which creates EEG in C. The resistance to STF by C towards the EH will cause C to accelerate towards BH1 and such acceleration will cause emergent G forces. Unlike GR and UG, the force, mass C feels is not due to action at a distance. BH1 is not curving ST around it which is then “felt” by C, rather due to the predominant STF originated by BH1 due to its much larger mass. These two types of G forces present themselves as the gravity we experience in our universe.

QST provides new symmetries and dualities of ST & DE energy and matter proven by conversions of energy from DE/ST/matter entering and exiting the EH of BH. STF created by BH1 consuming ST at the EH is proof of the ST/DE duality and of emergent entropic gravity. BH create cavities or bubbles of the lowest possible energy density but highest speed in the ST field because STF=c at the BH EH.

$$B_v(T) = \frac{8\pi v^2}{c^3} U,$$

B_v = radiated energy density

Boltsman equation using his constant σ describes entropy of radiated energy density $j(T)$ as:

$$j(T) = \sigma T^4$$

Entropy increase from unconfined DE in the DE/EH to the ST field and to DE EH are the three forms of Entropic energy systems of our universe.

Mass according to Max Planck is a [harmonic oscillator](#) cavity. In QST point particles with mass ([Fermions](#)) are QM vibrating harmonic oscillators in QFT fields consuming ST energy at c as their source of energy. Any

⁶ Cyclic model papers [1,2,3](#),

excess energy absorbed beyond a Fermion stable state is emitted back into the EM field or is observed as random fluctuations of ZPE.

QST postulates that a BH is just an extreme, gigantic case of the same harmonic oscillator presented as confined dark energy at the EH consuming ST at c . Both can exist in the same ST field representing a range of 10^{122} orders of magnitude of possible ST energy density. because both represent $STF=c$ under different confinement and density. Planck showed us the smallest possible confinement and the EH of any BH shows us the largest possible confinement of DE or ST energy.

The $ST \rightarrow \text{matter}$ [energy conversions](#) at c keep all matter particles confined and give all particles their mass and energy source for the past 13.7B years. This energy also gives rise to properties of the strong and weak confining forces. The 4 known forces only differ by the range of their confinement. EM & STF fields are confined by the 2D sphere representing the EH of our universe and the Strong and weak forces are confined at the quantum particle level due to the extreme density of their energies and the small radius they occupy. (explained further in Paper #5)

The QST ST field conversion provides the missing QM interaction between ST, matter and BH. The conversion of $ST \rightarrow \text{matter}$ and $ST \rightarrow \text{BH}$ based on their mass/radius ratio creates source and “sink zones” of STE density in the ST field. (explained further in Paper #2)

Any sink zone of ST/QFT force carrier interaction ([FCI](#)) is a combination of $E = mc^2$ & $\Delta E \Delta T \geq \frac{h}{4\pi}$ while Heisenberg uncertainty requires any FCI to be as short as possible and requires the return of all borrowed ST energy during ΔT to the vacuum of ZPE, QST explains ΔT as borrowing from the continuous conversion of E from STF/QFT to power and maintaining all spin, charge and momentum of all particles.

Since the range of FCI can be defined as $t = \frac{r_0}{c}$ we can replace ΔE & ΔT of the QM equation by “gravitizing the Heisenberg quantum equation” with $mc^2 \frac{r_0}{c} \geq \frac{h}{4\pi}$ and provide the energy density from the ST domain defined as STF required to perform all FCI standard model interactions.

$$\text{According to Heideki Yukawa } m = \frac{h}{4\pi r_0 c} \approx 100 \text{ MeV}$$

FCI is just part of such $QFT \rightarrow ST \rightarrow QFT$ quantum energy exchange and conversion with

$$m = 138 \text{ MeV (LHC measured value)} \text{ or } E_{STF} = c^2 * 138 \text{ MeV.}$$

GR & QM both describe static “snapshot equations” of STF in the $QFT \rightarrow ST \rightarrow QFT$ FCI. QST describes the moving and interacting domains exchanging energy and force carriers to enable all emergent phenomena in QFT including gravity. Curved Spacetime in GR is the QST lower energy density part of the flowing ST field. STF and QFT particles are both emergent from the ST/QFT interactions and energy conversion at c .

In QFT, only STF & FCI interactions with left handed [SU\(2\) spin](#) particles are possible. This is because only left handed particles (chirality) transfer properties through the $QFT \rightarrow ST \rightarrow QFT$ domains extending charge and spin properties to their new particles in QFT fields. Right-handed spin particles can not perform the $QFT \rightarrow ST \rightarrow QFT$ FCI.

If we extend our model MSF universe to include matter it results in:

1. ST and matter are two energy domains representing a duality of inverse energy density through FCI.
2. ST domain low sink zones are high density mass domain zones connected with continuous STF in the ST domain towards “sink” ST zones feeding mass at c . (Paper #5)

3. STF between the ST domain and matter domain (ST→QFT) needs to stay uninterrupted at c for matter to stay confined and have stable mass. Same uninterrupted conversion of ST→DE at the EH of a BH domain at c. (paper #4)
4. Gravity emerges as a force proportional to any resistance of mass to STF between domains. G forces also emerge through relative acceleration inside domains that are not aligned with acceleration in other (DE or matter) domains. (Paper #4)
5. All resistance or acceleration conditions between domains produce the same G forces in the same ratio of acceleration or resistance between fields based on their energy density. Gravity and G forces are [invariant under all conditions](#).

The EH of a BH combines the physics laws of GR & QM providing the perfect lab conditions to discover the secret of their unification. QST explains such conditions, proving energy conservation and [symmetry of interactions between ST, matter, and DE](#).

Light can not escape from a BH because STF=c at the EH so only energy traveling faster than c would be able to beat STF. It is not because the curvature of ST increases to infinity according to GR.

Hawking's equation describing the BH entropy and how BH can [evaporate over time](#) due to QM ZPE particles needs to be amended. No single BH has ever been observed to lose mass. This is because consumed STF is trillion of times "heavier mass" than any evaporation of mass due to QM ZPE at the EH. This has been observed as a [continuous linear increase](#) in mass of dormant BH from the consumption of STF.

Amending Hawking BH Entropy Equation

[Hawking's equation](#) describing the BH entropy (S_{BH}) being = to the surface area (A_{BH}) of a BH * k (entropy) * c (speed of interaction) divided by G (gravity) * "h-bar" (Planck constant)

$$S_{BH} = A_{BH} \left(\frac{kc^3}{4G\hbar} \right)$$

In QST we need to add to this equation the emergent force created by BH1 through STF. This potential energy of the entire ST field combined with the BH1 EH energy based on its mass. Both of these will give us total energy and the change in entropy caused by FCI over time.

The importance of the surface area of BH/EH vs. the volume of the sphere in GR tells us a lot about BH:

- a. Where BH store their mass & Info - only on the surface of the sphere of the EH surface. (paper #4)
 - b. BH continues to consume mass and ST and increase radius to maintain STF=c.
 - c. BH can increase and decrease their radius and mass in a linear fashion under specific conditions. (paper #4)
 - d. dormant BH continue to show strong increasing gravity and STF around them.
 - e. BH don't have singularities.
 - f. BH can only decrease in entropy. All mass and ST entering EH has higher entropy.
 - g. BH release confined energy and information. (paper #4)
 - h. All BH represent the same phenomena in terms of density, spin and charge.
1. BH are incompressible - All BH have the same energy density, surface gravity, (STF=c) and are perfect spheres. They all represent the same limit of DE confined by STF. If a BH adds energy or mass it must

increase its radius to account for such increase, if a BH loses energy or mass it must decrease the radius in order to maintain the EH energy density and $STF=c$. If we compare the smallest known BH to the largest and then compare both to the BH in our milky way we see a uniform ratio of mass & diameter:

<u>Name of BH</u>	<u>Diameter in miles</u>	<u>Solar Mass (SM)</u>	<u>SM/D</u>	<u>mass/radius</u>
a. BH J1850_	13	3.8	0.2923	$1.17 * 10^{30}$
b. Sagittarius A	16m	4.3m	0.2687	$1.07 * 10^{30}$
c. TON 618	242.2B	66B	0.2725	$1.09 * 10^{30}$

Since scientists have very accurate observations of Sag A mass and its diameter QST predicts that measurements of J1850 do not show sufficient diameter or need to show lower mass to match the Sag A SM/D ratio. The opposite is true of TON618 where mass needs to be higher or diameter smaller to match QST predictions. Surface gravity of all BH is $STF=c$.

Answering the 5 GR & QM questions

Now that we have all the rules related to gravity and energy exchanges in a Minkowski spacetime universe with one BH we can answer the 4 questions posted on the bottom of page 1 of this paper.

1. In QST ST & mass are two forms of energy domains. ST converts into confined matter with properties of mass and mass trapped in EH of BH or ordinary matter can turn back into spacetime under extreme conditions. This is the source of the relationship ST/Mass described by GR. (Paper #5)
2. In QST, any matter with mass in motion stays in motion because it consumes ST at c . Stationary or uniformly moving matter has the same interaction with ST, consuming ST at the same quanta which feeds energy from the ST field to the QFT fields. GR requires mass to bend ST with an invisible unspecified force and interaction. QST postulates that ST provides matter with all its energy and properties, and that ST/QFT interaction creates a gradient of lower energy density of ST around matter. This gradient creates STF which leads to emergence of gravity in mass resisting STF. (Paper #3)
3. This gradient of [energy density](#) (similar to $G_{\mu\nu}$ in GR) propagates from each "sink" (similar in terms to Coulomb law) around matter in all directions. The ST energy density increases towards deep space which is the "source" of all matter and BH. STF across the universe is driven by a source to sink ST flow. Any resistance by mass to STF permeates through it and experiences EEG. Centrifugal or directional acceleration in ST is a form of resistance to stationary ST/QFT flows which creates the same EEG G forces as resistance to permeating STF. (Paper #3)
4. ST/Mass and BH/ST energy interaction is quanta transfer at c . speed of light, all known forces and their interactions happen at c based on the ST/mass conversion. (Paper #5)
5. All matter, radiation and spacetime that was trapped and converted into the EH of BH as well as all the quantum entropic information generated eventually is released back when black holes collide or when the BH is so large that STF is insufficient to keep the BH EH confinement. (Paper #4)

Definitions:

1. BH - Black Holes
2. c - Speed limit of causality, information exchange, EM waves, speed of interaction ST/DE/QFT
3. CST - Curved space time
4. DE - Dark Energy in confined BH form or unconfined field form.
5. DE EH - The event horizon created by the MSF bordering the unconfined dark energy field
6. EEG - Emergent Entropic Gravity
7. EH - Event Horizon of a black hole or the universe.
8. FCI - force carrier interaction
9. GR - General Relativity
10. KE - Kinetic Energy
11. MSF - Minkowski Spacetime field
12. PE - Potential Energy
13. QST - Quantum Spacetime Theory
14. QFT - Quantum Field Theory
15. QM - Quantum Mechanics
16. S - Entropy of a system or between energy domains.
17. STF - SpaceTime Flow
18. ST - Space Time
19. TE - Total energy of a system
20. UG - Universal Gravitation law - Newton.

Citations

3. Sharifpur, Mohsen. (2020). Source and Sink Theory. Theoretical Physics. 5. 10.22606/tp.2020.51001.